



US006307837B1

(12) **United States Patent**
Ichikawa et al.

(10) Patent No.: **US 6,307,837 B1**

(45) Date of Patent: **Oct. 23, 2001**

(54) **METHOD AND BASE STATION FOR
PACKET TRANSFER**

5-327773 12/1993 (JP).
7-79243 A 3/1995 (JP).
9-252323 A 9/1997 (JP).

(75) Inventors: Takeo Ichikawa; Hidetoshi Kayama;
Hiroyuki Yamamoto; Hitoshi
Takanashi; Masahiro Morikura, all of
Tokyo (JP)

* cited by examiner

(73) Assignee: Nippon Telegraph and Telephone
Corporation (JP)

Primary Examiner—Salvatore Cangialosi

(74) Attorney, Agent, or Firm—Pennie & Edmonds LLP

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

(57) **ABSTRACT**

A method of packet transfer is provided to resolve the problem of fraudulent access to user LANs through falsified source address so that only those pre-registered terminals are permitted to transfer packets with specific data networks. Each user LAN is assigned an identifier to identify respective user LAN beforehand. Packet network stores terminal information including terminal addresses, identifiers assigned to one and more user LANs that are permitted to communicate with each packet terminal and information necessary for terminal authentication beforehand. When the packet terminal starts a communication through a base station, the packet network authenticates the packet terminal, and if it is an unauthorized terminal, the packet network informs a denial for communication to the packet terminal. If an allowance for communication is obtained by authentication, the packet terminal encrypts data to be transmitted and sends a packet to the packet network with an attachment containing the encrypted data, identifiers for the selected user LAN among one and more user LANs, the destination address and the source address. Packet network receives the packet, and while decoding the encrypted data included in the received packet, detects tampering, and if tampering is detected, the received packet is discarded, but if there is no tampering, it checks whether the identity of source address and the identifier is registered in the terminal information, and if the identity is registered, the received packet is sent to the destination address, and if the identity is not registered, the received packet is discarded.

(21) Appl. No.: 09/132,148

(22) Filed: Aug. 10, 1998

(30) **Foreign Application Priority Data**

Aug. 12, 1997 (JP) 9-228966

(51) Int. Cl.⁷ H04L 1/00

(52) U.S. Cl. 370/230; 370/401

(58) Field of Search 380/247, 29, 270,
380/283; 709/227; 713/153, 160, 161, 201;
370/230, 401

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,124,984 * 6/1992 Engel 370/230
5,199,072 * 3/1993 White et al. 380/44
5,638,448 * 6/1997 Nguyen 380/29
5,659,615 * 8/1997 Dillon 380/270
5,689,566 * 11/1997 Nguyen 380/29
5,757,924 * 5/1998 Friedman et al. 380/283
5,790,548 * 8/1998 Sistanizadeh et al. 370/401
6,047,325 * 4/2000 Jain et al. 709/227
6,081,900 * 6/2000 Subramaniam et al. 713/201

FOREIGN PATENT DOCUMENTS

2-302139 12/1990 (JP).

24 Claims, 22 Drawing Sheets

